



JOHN DEERE

**ENGINE PERFORMANCE CURVE**

Rating: Gross Power  
 Application: Industrial - Heavy Duty  
 Power Bulge - 3%  
 Torque Rise - 29%

**PowerTech E™ 4.5 L Engine**

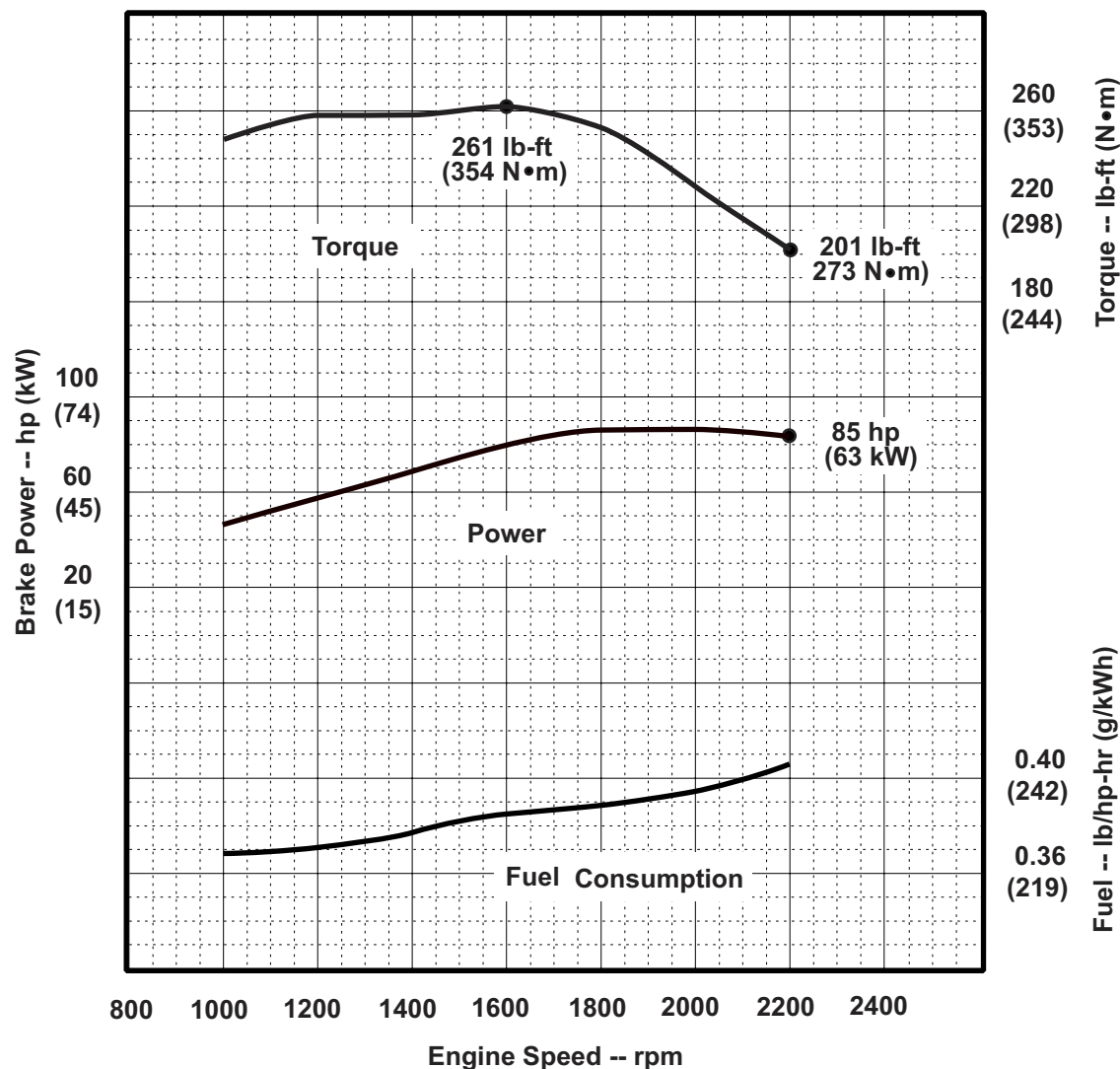
Model: **4045TF285**

**JD Electronic Control**

**85 hp @ 2200 rpm**

**63 kW @ 2200 rpm**

[See Option Code Table]



**STANDARD CONDITIONS**

Air Intake Restriction ..... 12 in.H<sub>2</sub>O (3 kPa)  
 Exhaust Back Pressure ..... 30 in.H<sub>2</sub>O (7.5 kPa)

Gross power guaranteed within + or - 5% at SAE J1995 and ISO 3046 conditions:  
 77 °F (25 °C) air inlet temperature  
 29.31 in.Hg (99 kPa) barometer  
 104 °F (40 °C) fuel inlet temperature  
 0.853 fuel specific gravity @ 60 °F (15.5 °C)

Conversion factors:  
 Power: kW = hp x 0.746  
 Fuel: 1 gal = 7.1 lb, 1 L = 0.85 kg  
 Torque: N·m = lb-ft x 1.356

All values are from currently available data and are subject to change without notice.

Notes:

Tier-3 Emission Certifications:	Certified by:
CARB; EPA; EU Ref: Engine Emission Label	<i>Vincent Penon</i> 6 June '07

\* Revised Data  
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 June 2007

## Engine Installation Criteria

### General Data

Model .....4045TF285  
 Number of Cylinders ..... 4  
 Bore and Stroke--in. (mm)..... 4.19 (106) x 5.00 (127)  
 Displacement--in.<sup>3</sup> (L).....275 (4.5)  
 Compression Ratio ..... 19.0 : 1  
 Valves per Cylinder--Intake/Exhaust ..... 1 / 1  
 Firing Order ..... 1-3-4-2  
 Combustion System ..... Unit Injection  
 Engine Type ..... In-line, 4-Cycle  
 Aspiration ..... Turbocharged  
 Charge Air Cooling System ..... None  
 Engine Crankcase Vent System ..... Open

### Physical Data (Estimated)

Length--in. (mm) .....34.1 (867)  
 Width--in. (mm) .....26.8 (680)  
 Height--in. (mm) .....41.5 (1055)  
 Weight, dry--lb (kg) ..... 1083 (491)  
 (Includes flywheel housing, flywheel & electrics)  
 Center of Gravity Location (Estimated based on Tier 2)  
     From Rear Face of Block(X-axis)--in.(mm).....9.8 (249)  
     Right of Crankshaft (Y-axis)--in. (mm).....2.2 (55)  
     Above Crankshaft (Z-axis)--in. (mm).....5.7 (145)  
 Max. Allowable Static Bending Moment at Rear Face of  
     Flywhl Hsg w/ 5-G Load--lb-ft (N•m) .....600 (814)  
 Thrust Bearing Load Limit --lb (N) Forward Rearward  
     Intermittent.....899 (4000).....450 (2000)  
     Continuous .....495 (2200).....225 (1000)  
 Max. Front of Crank. Torsional Vibration--DDA..... 0.25  
 Max. Continuous Damper Temp--°F (°C) ..... 180 (82)

### Air System

Maximum Allowable Temp Rise--Ambient Air to  
     Engine Inlet--°F (°C) ..... 15 (8)  
 Maximum Air Intake Restriction:  
     Dirty Air Cleaner--in. H<sub>2</sub>O (kPa).....25 (6.25)  
     Clean Air Cleaner--in. H<sub>2</sub>O (kPa)..... 15 (3.75)  
 Engine Air Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min) ..... 198 (5.6)  
 Intake Manifold Pressure--psi (kPa)..... 7 (48)  
 Air Cleaner Efficiency--% ..... 99.9

### Cooling System

Engine Heat Rejection--BTU/min (kW) ..... 2561 (45)  
 Coolant Flow--gal/min (L/min)..... 55 (207)  
 Thermostat Start to Open--°F (°C) ..... 180 (82)  
 Thermostat Fully Open--°F (°C) ..... 203 (95)  
 Engine Coolant Capacity--qt (L) ..... 9.0 (8.5)  
 Minimum Pressure Cap--psi (kPa)..... 14.5 (100)  
 Maximum Top Tank Temp--°F (°C) ..... 230 (110)  
 Minimum Coolant Fill Rate--gal/min (L/min) ..... 3 (11)  
 Minimum Air-to-Boil Temperature--°F (°C)..... 117 (47)  
 Minimum Pump Inlet Pressure--psi (kPa) ..... 4.4 (30)

### Electrical System

**12 Volt 24 Volt**  
 Min. Battery Capacity (CCA)--amp ..... 800 ..... 570  
 Max. Allow. Starting Circuit Resist.--Ohm 0.0012..... 0.002  
 Starter Rolling Current  
     At 32 °F ( 0 °C)--amp ..... 920 ..... 600  
     At -22 °F (-30 °C)--amp ..... 1300 ..... 700  
 Min. Voltage at ECU during Cranking--volts ..... 6 ..... 10  
 Max. ECU Temperature--°F (°C)..... 221 (105)  
 Max. VTG Elec. Actuator Surface Temp.--°F (°C) 221 (105)  
 Max. Harness Temperature--°F (°C) ..... 248 (120)

### Exhaust System

Exhaust Flow--ft<sup>3</sup>/min (m<sup>3</sup>/min)..... 534 (15.1)  
 Exhaust Temperature--°F (°C)..... 1035 (557)  
 Max. Exhaust Restriction--in. H<sub>2</sub>O (kPa) ..... 30 (7.5)  
 Min. Exhaust Restriction--in. H<sub>2</sub>O (kPa) ..... None  
 Max. Bend. Moment on Turbo Out.--lb-ft (N•m)..... 5.2 (7)  
 Max. Shear on Turbo Outlet--lb (kg) ..... 24 (11)

### Fuel System

ECU Description ..... L16 Controller  
 Fuel Injection Pump ..... Denso HP3  
 Governor Type ..... Electronic  
 Total Fuel Flow--lb/hr (kg/hr) ..... 82 (37.3)  
 Fuel Consumption--lb/hr (kg/hr) ..... 34 (15.5)  
 Max. Fuel Inlet Temperature--°F (°C) ..... 176 (80)  
 Fuel Temp. Rise, Inlet to Return--°F (°C) ..... 78.3 (44)  
 Max. Fuel Inlet Restriction--in. H<sub>2</sub>O (kPa) ..... 80 (20)  
 Max. Fuel Inlet Pressure--in. H<sub>2</sub>O (kPa) ..... NA (NA)  
 Max. Fuel Return Pressure--in. H<sub>2</sub>O (kPa) ..... 80 (20)

### Lubrication System

Oil Pressure at Rated Speed--psi (kPa) ..... 58 (400)  
 Min. Allowed Oil Pressure--psi (kPa) ..... 15 (105)  
 Max. Oil Carryover in Blow-by--lb/hr (g/hr) ..... 0.002 (1.0)  
 Max. Airflow in Blow-by--gal/min (l/min)..... 26 (100)  
 Max. Crankcase Pressure--in. H<sub>2</sub>O (kPa)..... 2 (0.5)

### Performance Data

Rated Power--hp (kW) ..... 85 (63)  
 Rated Speed--rpm ..... 2200  
 Breakaway Speed--rpm ..... 2270  
 Fast Idle Speed--rpm ..... 2400  
 Peak Torque--lb-ft (N•m)..... 261 (354)  
 Peak Torque Speed--rpm ..... 1600  
 Minimum Low Idle Speed--rpm ..... 800  
 BMEP--psi (kPa) ..... 110 (762)  
 Friction Power @ Rated Speed--hp (kW) ..... 17 (13)  
 Altitude Capability--ft (m) ..... 10,000 (3050)  
 Ratio--Air : Fuel ..... 24.4 : 1  
 Smoke @ Rated Speed--Bosch No. ..... <1.3  
 Noise--dB(A) @ 1 m ..... 90.3  
 Power Bulge--% ..... 3  
 Power Bulge Speed--rpm ..... 1900  
 Torque Rise--% ..... 29

Engine Speed rpm	Power hp (kW)	Torque lb-ft (N•m)	BSFC lb/hp-hr (g/kWh)
2200	85 (63)	201 (273)	0.406 (247)
2000	87 (65)	229 (310)	0.395 (241)
1800	87 (65)	252 (342)	0.389 (237)
1600	80 (59)	261 (354)	0.385 (235)
1400	69 (52)	259 (351)	0.378 (231)
1200	59 (44)	259 (351)	0.371 (226)
1000	47 (35)	249 (337)	0.369 (225)

All values at rated speed and power with standard options unless otherwise noted.

\* Revised Data  
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